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CAN THE EU RECONCILE DIGITAL SOVEREIGNTY AND ECONOMIC COMPETITIVENESS?

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Zach Meyers

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Issue Paper

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Executive Summary

The EU faces several economic headwinds – but three issues are of particular concern. The first is the EU's competitiveness problem. As Mario Draghi's 2024 report on European competitiveness argued, this is fundamentally a problem of low economic growth, which can only be solved by the bloc embracing better use of technology throughout all sectors of the economy to increase its productivity. The second is the behaviour of the EU's major trading partners, which is causing the bloc to focus more on its technological sovereignty, reflecting broad recognition in Europe that the EU's technological dependencies are too widespread and too one-sided. The third is that the actions necessary to address both problems – reforms to boost business dynamism and economic growth, on the one hand, and to better enable the commercialisation of innovation in Europe – have been on the agenda for decades. The EU has simply not delivered them.

The relationship between competitiveness and digital sovereignty is complex. Boosting productivity requires improving the use and diffusion of technology throughout the EU. For now, the EU is not a global leader in most technologies expected to be key to future economic growth, and so remaining open to foreign technology is an imperative. However, a path to digital sovereignty requires Europe to become stronger at innovation – even if that is, in the short term, innovation over the top of existing, mostly non-European, technologies.

In the long term, competitiveness and technological sovereignty can align: Europe's sovereignty will be under even greater threat if it falls further behind in innovation. However, many of Europe's past industrial policies have pitted these two priorities against each other. On the one hand, many industrial policies have protected incumbent industries (like vehicle manufacturing) from change, rather than accepting – and forcing European firms to accept – global technological and geopolitical changes and their disruptive economic impacts. On the other hand, Europe has pursued sovereignty-focused initiatives like the cloud computing federation GAIA-X, which focused on sovereignty at the expense of growth – focusing on reducing foreign dependencies rather than building sustainable business models. European digital industrial policy in the past has taken too little account of unavoidable market dynamics such as 'first mover' advantages, the EU's financial capabilities, and Europe's comparative strengths and weaknesses.

Lack of realistic and properly calibrated ambitions, and an unwillingness to openly acknowledge and confront the complex relationship between competitiveness and digital sovereignty, has too often led to promises to deliver 'everything, everywhere, all at once' but an inability to effectively prioritise. An unwillingness to openly confront trade-offs has also contributed to disjointed policies – with a lack of coherence across state aid, trade, foreign, competition, industrial and innovation policy.

The European Commission has proposed a European Competitiveness Fund to support more projects aiming to boost the bloc's technological sovereignty. At the same time, the Commission is designing proposals like the Cloud & AI Development Act to boost use of technologies like cloud and AI, and perhaps also to support 'sovereign' technological solutions. **However, even if the Commission's ambitions make it through the political process, it will still need to ruthlessly prioritise**: the Commission's proposed Competitiveness Fund would dedicate about €55 bn to digital leadership, so even if Member States do not water the proposal down, the figure pales in comparison to the cost of building an end-to-end set of European options, which even its proponents estimate at €300 bn. **In**

this context, this issue paper lays out a framework for policy makers to prioritise and to best align competitiveness and sovereignty.

The paper proposes that policy makers start by **clearly identifying which particular threats to sovereignty they wish to address**, and then to **quantify both the likelihood and consequences of those risks materialising**. This can help inform an evidence-based approach to prioritisation. Some of these risks – like the US triggering a 'kill switch' to suspend cloud services, on which countless European firms depend – may be of very low likelihood, but have very significant economic impacts. **A European competitiveness strategy cannot plausibly ignore these significant risks to its growth prospects.**

The paper then explores four potential models for supporting technological sovereignty, assessing how consistent each one is with the bloc's growth prospects. These models comprise:

- **Creation of an end-to-end tech stack – from basic connectivity through to data centres, operating systems, AI models and end-user software – based on principles of openness and interoperability**. The paper doubts **that it is plausible for the EU to ensure competitive options throughout the end-to-end tech stack**. Digital supply chains are global and rely on local specialisation. Countries like China which are trying to control end-to-end stacks have only done so with the use of massive subsidies, the exclusion of foreign suppliers at significant cost, and other policy tools which the EU cannot replicate. Furthermore, merely ensuring the *availability* of EU technological solutions may provide only marginal benefits in the event that EU customers have to jettison a foreign tech supplier at short notice. More importantly, such an approach is likely to require protection of 'strategic' European firms from foreign competition – directly or via discriminatory regulation or public procurement rules – rather than promoting economic dynamism. This may encourage more take-up of European services – but it risks discouraging take-up of technologies generally, undermining the bloc's path to greater competitiveness. Moreover, it seems highly unlikely that the funding necessary to build such an end-to-end stack will be available – meaning the EU must take a more targeted approach.
- **Pursuing European alternatives in a few targeted parts of the tech supply chain which are seen as particularly sensitive to reduce the EU's existing dependencies**. This approach requires prioritisation, which might require for example that investments (i) target the most sensitive parts of the value chain; (ii) address dependencies with partners which seem particularly untrustworthy or which are particularly one-sided; (iii) are needed because alternative approaches (like relying on foreign firms' 'sovereign cloud' solutions) are demonstrably insufficient; and (iv) at the very least, have a viable technical and business case (or require an affordable amount of ongoing subsidy). While aspects of this approach are likely to be an important part of a digital sovereignty agenda, it retains some of the disadvantages – including to economic competitiveness – of creating an end-to-end tech stack, and therefore should be adopted only in narrow and targeted areas.
- **Pursuing leads in emerging technologies to increase other countries' dependencies on the EU – giving Europe more leverage in its trading relationships.** This approach is potentially the most growth-enhancing. But it requires getting the basics right, like ensuring enabling infrastructure and a regulatory environment that will foster local innovation and investment

– all of which demands more rapid adoption of most of Mario Draghi's recommendations. This approach will require the EU to get better at 'picking winners' in industrial policy through more evidence-based and less politicised decisions; to be more willing to let economic losers fail; to provide more subsidy and long-term policy certainty; to develop its single market; and to be more willing to accept economic disruption. Finally, having more advantages is not itself enough: the EU also needs to be willing and able to leverage these advantages when dealing with its major trading partners. The EU's approach to trade negotiations with the US President suggests it is not yet willing to fully exploit its own strengths, in order to protect its interests in preserving the open markets and free trade on which the EU's economic model has thrived.

- **Finally, Europe may use its market strength to mitigate sovereignty risks – by requiring firms to provide services which reduce Europeans' exposure to 'weaponisation' of dependencies; and/or ensure workable fall-back options if such weaponisation occurred.** This is likely to be one option pursued by the upcoming Cloud & AI Development Act. This solution has one primary benefit when it comes to competitiveness: to the extent it is cheaper than other forms of achieving sovereignty, it is most consistent with the EU pursuing technology diffusion as its primary means of boosting competitiveness – at least in the short term. These measures must be pursued in an open, evidence-led manner. However, relying solely on this strategy will do nothing to boost the EU's presence in high-growth sectors in the long term.

A combination of the last three solutions – defensive investments to ensure European suppliers in some core technologies, offensive steps to build out EU capabilities in areas where it can act as a global 'chokepoint', and measures to mitigate political risks from using non-EU providers – will therefore likely be necessary.

To best align digital sovereignty with competitiveness, Europe's strategy should shift away from trying to eliminate all its dependencies: this will take years, cost money that is not available, and risks slowing tech take-up. It should identify where in global supply chains it can add value – aiming to achieve enough technological supremacy in enough parts of the supply chain that its dependencies will no longer be so unilateral. At the same time, it must reform itself so it can better leverage these advantages to protect its values.

Europe's digital sovereignty will be under greatest risk if it excludes foreign technologies and pursues an autonomous cul-de-sac set of technologies which cannot compete globally, as Japan experienced. A significant risk is that – faced with more external threats and aggressive economic policies from other major powers – Europe will repeat its past industrial policies, by giving too much attention to creating European versions of foreign firms' services and not enough attention to Europe's potential to lead in future technologies. A shift is essential because until now Europe's approach to digital industrial policy is the worst of both worlds: delivering neither growth nor sovereignty.

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info@cerre.eu – www.cerre.eu

Table of Contents

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About the Author

Zach Meyers is Director of Research at CERRE, where he has a wide remit, including managing cross-sectoral programmes and projects.

Previously the assistant director of the Centre on European Reform, Zach Meyers has a recognised expertise in economic regulation and network industries such as telecoms, energy, payments, financial services and airports. In addition to advising in the private sector, with more than ten years' experience as a competition and regulatory lawyer, he has consulted to several governments, regulators and multilateral institutions on competition reforms in regulated sectors. He is also a regular contributor to media.

Zach holds a BA, LLB (with First Class Honours) and a Master of Public & International Law from the University of Melbourne.

1. Introduction

Mario Draghi's 2024 report on European competitiveness[1] paints an alarming picture of the EU's economic prospects. The report's prognosis is serious: the EU has lost business dynamism; the relative cost of doing business in the bloc has increased; and the global political environment has become more hostile to Europe's trade-intensive business model. Since then, the new US administration has posed even greater challenges for Europe's economic model by backing away from many forms of international co-operation, imposing new tariffs against the rest of the world, and threatening to retaliate against the EU's attempts to regulate its own market. This is causing an important shift in the EU's priorities, with digital sovereignty (the ability of the EU to regulate digital infrastructure and services in Europe) a priority at least on par with increasing growth. Yet the fundamental problems which are in Europe's power to address – such the need to increase business dynamism and use of technology to increase productivity, and its need to enhance local innovation to boost digital sovereignty – have been set out in numerous previous reports, ranging from the Lisbon Strategy of 2000[2] to Mario Monti's single market strategy of 2010.[3] The EU has simply not delivered them.

The relationship between competitiveness and digital sovereignty is complex. Boosting productivity requires improving the use and diffusion of technology throughout the EU. For now, the EU is not a global leader in most technologies expected to be key to future economic growth. So Europe's path to digital sovereignty will likely require it to work with and innovate over the top of existing technologies wherever they come from.

In the long term, competitiveness and technological sovereignty can align: Europe's sovereignty will be under even greater threat if it falls further behind in innovation. A new approach to digital industrial policy could help insulate Europe from geopolitical threats and boost Europe's digital sovereignty: a significant threat to Europe's sovereignty is that it falls even further behind in innovation. Examples like Airbus demonstrate that the EU can create successful industrial policies – which boost competition, support local industry and generate global technological leadership. However, in the past European policy makers have often responded with industrial policy ambitions which were poorly designed and pitted the two priorities against each other. Too often, EU leaders have adopted ambitions which were based on creating European versions of foreign successes, rather than a sober assessment of which investments would boost growth and which risks to European sovereignty could be realistically mitigated. Much of the EU's past digital industrial policies, for example, have been unrealistic in assuming they would create commercial successes, because they failed to appreciate global market dynamics (such as the first-mover advantages which several US tech firms have enjoyed), the EU's financial capabilities, and the EU's comparative strengths and weaknesses.[4] For example, Europe has pursued sovereignty-focused initiatives like the cloud

[1] Mario Draghi, 'The future of European competitiveness', September 2024.
[2] Lisbon European Council, 'Presidency Conclusions', March 2000, https://www.europarl.europa.eu/summits/lis1_en.htm.
[3] Mario Monti, 'A New Strategy for the Single Market: at the Service of Europe's Economy and Society', 9 May 2010.
[4] The European Commission, for example, has been advised to "urgently carry out a reality check" on its chips strategy by the European Court of Auditors, with its targets being widely viewed as aspirational and not something that can be realistically achieved: European Court of Auditors, 'The EU's strategy for microchips',

computing federation GAIA-X to boost technological sovereignty, which did not prioritise and failed to deliver economic growth. On the one hand, many industrial policies have aimed to protect growth at the expense of innovation: for example, by protecting incumbent industries like vehicle manufacturing, rather than accepting global technological changes and their consequent technological and economic disruptions.

Lack of realistic and properly calibrated ambitions, and an unwillingness to openly acknowledge and confront the complex relationship between competitiveness and digital sovereignty, has too often led to promises to deliver 'everything, everywhere, all at once' but an inability to effectively prioritise. An unwillingness to prioritise has also contributed to Europe lacking a clear strategy with disjointed policies – with a lack of coherence across state aid, trade, foreign, industrial and innovation policy – and a corresponding lack of clear, future-proof and innovation-friendly regulation.

The current Commission's Political Guidelines[5] emphasise the need to stimulate innovation – for example by giving more emphasis to innovation in competition policy, financing computing power for Europe's AI industry, increasing access to data, and boosting research spending – but still do not recognise all of the trade-offs required to deliver this innovation. For example, the Guidelines and the EU's Competitiveness Compass recognise that start-ups need help to grow and expand, [6] but the EU needs to also ensure the flip-side: that unsuccessful firms can fail quickly and their resources and workers can be reallocated to more productivity-enhancing sectors or firms. The Competitiveness Compass[7] similarly promises to address low-hanging fruit like cutting regulatory reporting requirements, but it does not deliver a coherent vision for the European digital sector. Although the Commission has proposed a European Competitiveness Fund, even the Commission's own proposal is far less than many supporters of an ambitious digital industrial policy have called for. This which makes it even more important that Europe sets realistic ambitions, that it ensures those ambitions are targeted at achieving growth, and that EU leaders finally confront the trade-offs between their different goals.

There is widespread agreement that Europe needs to boldly change its approach.[8] This issue paper is the first paper in CERRE's EU Competitiveness Forum. It explains the overall framework in which to analyse Europe's economic problems, particularly in the digital sector. It then explores how to reconcile the need for economic growth with furthering Europe's digital sovereignty.

Special Report 12/2025, 2025, p 18. Despite its target of the EU achieving a 20% share of the global market of chip manufacturing, it is likely to only maintain the EU's current 8% share and has been criticised for lacking a "clear strategic direction about to what end the semiconductor sector is supported beyond increasing market share": Johanna Breuer, Anton Spisak and Alexandr Burilkov, 'The GLOBSEC Tech Adoption Tracker: Assessing the EU's strategies on semiconductor manufacturing, AI adoption, and defence tech', June 2025.

[5] Ursula von der Leyen, Europe's Choice: Political Guidelines for the Next European Commission, 2024–2029, July 2024.

[6] Claudie Moreau and Nicoletta Ionta, "Commission to slash startup bureaucracy under new plan", Euractiv, 14 May 2025. The EU already has high levels of start-ups and similar levels of market entry as the US, however: Oyun-Erdene Adilbish et. al., "Europe's productivity weakness: Firm-level roots and remedies", CEPR, VoxEU, 24 February 2025.

[7] European Commission, 'A Competitiveness Compass for the EU', COM(2025) 30, 29 January 2025.

[8] See Kai Zenner et. al., 'The "European Way": A Blueprint for Reclaiming our Digital Future', 2025.

2. Understanding Europe's competitiveness problem

Economists largely agree that European economic growth has disappointed in recent decades. The EU's languid growth in comparison to China is expected, given China's lower level of development and ability to enjoy 'catch up' growth. But the EU has also consistently underperformed against the US, which was until recently experiencing blistering levels of growth considering its position already at the technological frontier.[9]

Yet the reasons for Europe's slow growth are contested. The European economy is suffering from numerous headwinds at the same time:

- Much of Europe's economic growth in recent decades has been due to the strength of its goods exports[10] – with domestic consumption and investment providing very little growth. Yet **Europe's export-oriented growth model is now under enormous stress**. The US and China are adopting increasingly protectionist policies. China's rise up the manufacturing value chain and growing technological capabilities threaten Europe's traditional stronghold in exporting high-end goods: Europe's high-tech manufacturing industries are facing a third straight year of declining production.[11] Europe suffers high production and energy costs. This has led many of Europe's successful industrial sectors to demand European governments provide public subsidy and loosen regulations to support their continued ability to export and compete in world markets in order to protect the status quo.
- Just as exports are under stress, the EU is one of the world's largest importers and its major trading partners now seem **increasingly prepared to weaponise their trading relationships for geopolitical ends**, as illustrated by China's recent export controls on rare earths and the US President's threats to retaliate against the EU's rules regulating digital services. This has contributed to calls for the EU to 'de-risk' its supply chains, for example by diversifying its sources of imports and boosting support for European alternatives to foreign products and services. In comparison, the EU has been relatively unwilling and insufficiently unified to weaponise the degree to which others are dependent on it – as demonstrated by its recent acceptance of new US tariffs on EU-originating imports[12] and its unwillingness to use tools like its Anti-Coercion Instrument.
- **Several employment-rich sectors important to the EU economy, like vehicle manufacturing, are undergoing profound changes**. One reason is other countries' subsidisation and economic models. But technology also plays an important part: the shift from combustion engine to electric vehicles, for example, has undermined Europe's legacy strength in combustion engine technology, and increased the EU's reliance on products like batteries (and upstream inputs

[9] Gideon Rachman, 'Europe has fallen behind America and the gap is growing', Financial Times, 19 June 2023.
[10] This is illustrated in the fact that while the EU's share of the global economy is in decline, its share of global trade has remained relatively stable: see discussion in Aslak Berg, 'Europe and the global economic order', CER policy brief, 22 January 2025.
[11] Orgalim, 'Third year of production decline looms', press release, 2025, https://orgalim.eu/wp-content/uploads/Orgalim-Economics-and-Statistics-Report-Spring-2025.pdf.
[12] Caroline Alexander, 'Harsh Reality of US Trade Deal Stirs EU Angst', Bloomberg, 29 July 2025.

like rare earths) where there is little domestic production. The transition to electric vehicles will also lead to a massive reduction in the number of jobs the sector requires, since electric vehicles are significantly less complex to assemble. In 2024, Europe lost 54,000 jobs in the automotive supply industry.[13]

- **In digital technology and services – the economic sector which is likely to matter the most for Europe's future economic growth and its geopolitical security – Europe's leadership has fallen far behind the US and China**. It lags its global rivals in seven of the eight most critical technologies[14] – for example, only 6% of AI start-up funding is going to European firms – and only four of the world's 50 largest tech companies are European. As Europe's digital regulation becomes a topic of geopolitical threats,[15] the bloc's lack of leadership in technology contributes to the EU's slow economic growth, but increasingly also puts into question Europe's sovereignty: its ability to protect its economy and assert its values.
- Simultaneously with all these challenges, **Europe's productivity growth is stalling** – but the continent has a combination of labour shortages, a declining population meaning this problem could get worse before it gets better, and opposition to large-scale immigration, all of which mean this problem will be very difficult to solve.

This suggests a litany of interconnected problems facing the European economy, all of which might be described under the broad rubric of a 'competitiveness problem' and which impact, or threaten to impact, Europe's growth. Many of these problems are related to technology: Europe has too little presence in critical and high-growth parts of the ICT sector, being reliant on foreign companies in areas like cloud computing, AI, digital platforms; its lack of success in the electric vehicle market is at least partly due to the vehicle manufacturing sector's unwillingness to accept change. This creates confusion about how to disentangle root causes from symptoms. Many of the economic problems are not new: many were identified, and solutions proposed, in initiatives like the Lisbon Strategy of 2000,[16] its 2005 update,[17] and in the Europe 2020 Strategy of 2010-2020.[18] Yet they remain unaddressed – suggesting that the EU's inability to deliver reforms is itself a major headwind to economic progress.

It is not always clear which of these problems the EU wishes to prioritise in its competitiveness strategy. This contributes to an unwillingness, or inability, to confront the EU's limitations and the necessary trade-offs. Instead, there are too often assertions that the EU can achieve all its objectives at once: that it can have high levels of innovation, protect incumbent industries and firms, provide workers with high levels of protection, remove excessive dependencies and diversify its supply chains, all while running export surpluses. The full consequences of policy and regulatory proposals for the EU's different priorities are often not fully considered until the point when they are being

[13] European Association of Automotive Suppliers, 'Job losses escalate as demand stays below expectation', 15 January 2025.
[14] Digital Europe, 'The EU's Critical Tech Gap: Rethinking economic security to put Europe back on the map', 20 June 2024.
[15] Mathieu Pollet, 'Trump can pull the plug on the internet, and Europe can't do anything about it', Politico, 18 June 2025.
[16] Lisbon European Council, 'Presidency Conclusions', March 2000, https://www.europarl.europa.eu/summits/lis1_en.htm.
[17] European Commission, 'Working together for growth and jobs: A new start for the Lisbon Strategy', 2 February 2005.
[18] European Commission, 'Europe 2020: A strategy for smart, sustainable and inclusive growth', 3 March 2010.

implemented.[19] When it comes to industrial policy, the EU's plans often rely on enormous headline figures, which obscure the fact that levels of EU funding for its industrial ambitions are often very low and boosted by heroic assumptions about member-state co-funding and private sector co-investment.

A more sober approach would accept and openly tackle trade-offs and the need to prioritise: it would assess carefully when and how the solutions to different problems might conflict, and produce quantified evidence to explain how those trade-offs have been managed.

To prioritise, problems first need to be clearly and precisely identified and described. Here, Draghi's overall diagnosis is clear: Europe's 'competitiveness crisis' is fundamentally a problem of low productivity. In turn, this requires improving the use and diffusion of technology throughout the EU. There is a good evidence base to support this finding:

- **Some of the difference between EU and US growth rates is demographic (such as the US having a younger average workforce) or connected to deliberate policy choices by European governments** (such as limiting immigration, not encouraging employees to work for longer, or not using the fiscal space available to stimulate the economy).[20] There is little political appetite across Europe to change these policy decisions – a path to growth must work with Europe's existing social model.
- M**ost of the economic gap between the EU and the US is down to productivity per hour worked**. In particular, total factor productivity – or the otherwise unexplained reasons for increases in output, excluding labour and capital deepening, which economists attribute to the adoption of new technologies and working practices – has been significantly stronger in the US compared to Europe from 2008 to at least 2021.[21] For example, in the construction sector, only 40% of EU firms report having adopted digital technologies, compared to 61% in the US.[22] The EU has a proportionately larger public sector than the US: which may be a significant contributor, since the public sector tends to be slower than the private sector in adopting technology and boosting its productivity.
- Draghi argues this productivity gap is almost entirely down to the size and success of the US tech sector, and the ECB attributes two-thirds of the productivity gap to tech.[23] The US tech sector admittedly has astonishing levels of productivity: productivity of US listed tech firms increased by about 40% in the last 20 years while productivity of EU listed tech firms was stagnant.[24] **However, productivity growth of non-tech firms has also been significantly higher in the US than in Europe since 2014.**[25] Broad swathes of the US economy – particularly the services sector – generally enjoy high productivity growth, thanks to their greater use of

[19] Marco Bassini et. al., 'Better Law-Making and Evaluation for the EU Digital Rulebook', CERRE, January 2025, p 3.
[20] Aslak Berg, 'Why Europe should not worry about US out-performance', CER insight, 13 December 2023.
[21] Dan Turner, et. al., 'What should the UK learn from "Bidenomics"?', Harvard Kennedy School, M-RCBG Associate Working Paper Series, No. 252, figure 14.
[22] European Investment Bank, 'Who is prepared for the new digital age?', 20 April 2020, https://www.eib.org/en/publications/online/all/eibis-digitalisation-report.
[23] Christine Lagard, 'The transformative power of AI', ECB speech, 1 April 2025.
[24] Oyun-Erdene Adilbish, et. al., above n 6.
[25] Dan Turner, et. al., above n 21, figure 15.

tech and their willingness to invest more in R&D and ICT than their European equivalents.[26] Over the period 1995-2005, US productivity growth in services averaged 3.2% per year, compared to 0.9% in Europe.[27] **That is consistent with a substantial economic literature showing that it is firms which use technology in ways that boost their productivity derive more economic value from the technology than those which create it.**[28] That is likely to become even more true if – as seems likely – there is more effective competition in providing technologies like AI than there has been in some existing digital markets (and therefore even more of the value of AI will be enjoyed by consumers and firms which use AI, rather than the firms providing it).[29]

- Various other aspects of Europe's economic problems are simply symptoms of Europe's poor take-up for technologies. For example, Europe's lack of technology leadership is likely to be caused, at least in part, by the fact that European business customers and consumers are cautious in trying out new technologies and using them to drive productivity, which deprives European tech firms of a local customer base – encouraging them to move to the US to grow.

We will examine why European businesses and consumers are cautious in adopting new technologies in a future issue paper in this project. However, technology diffusion will require significant changes to the European economy. For example, Europe has been relatively good at incorporating industrial technologies into its manufacturing processes. It has relatively strong levels of productivity in producing high-tech goods like airplanes and components for low-carbon energy production.[30] However, in those sectors Europe is often at or close to the technological frontier already. Services comprise 70% of the European economy and are where EU productivity badly lags behind. The EU's focus must be on incorporating today's existing ICT services in ways that boost productivity in the European services sectors. Furthermore, while AI will have many benefits for industry (for example in optimising supply chains), its potential impact is likely to be much higher for services. **To maximise the productivity benefits of these technologies will require a structural shift in Europe's economy, with labour or capital being reallocated to services as they become more productive**.

Accepting this need for economic disruption will be difficult enough for the EU. However, a growth-first approach might involve trade-offs with other economic challenges facing the EU. Draghi's own report highlights a number of these, including the need to balance competitiveness with technological sovereignty in areas like cloud computing and AI.[31]

[26] Pittaway, "What should the UK learn from 'Bidenomics'?"; Adilbish, et. al., above n 24; Bart van Ark, et. al., 'ICT and productivity in Europe and the United States: Where do the differences come from?', The Conference Board, 2003.
[27] Isabel Schnabel, 'From laggard to leader? Closing the euro area's technology gap', European Central Bank speech, 16 February 2024.
[28] John van Reenan, et. al., 'The Economic Impact of ICT', Enterprise LSE, January 2010.
[29] Zach Meyers and Marc Bourreau, 'A competition policy for cloud and AI', CERRE issue paper, June 2025.
[30] Eurostat, 'Labour productivity and unit labour costs by industry', 29 July 2025.
[31] Draghi, above n 1, page 24.

3. The relationship between economic growth and digital sovereignty

In recent years, the EU has given more emphasis to the importance of digital sovereignty, including in the European Economic Security strategy of June 2023.[32] The Spanish presidency's "ResilientEU2030" paper also proposes a strategy for economic security.[33] The concept was recently defined by the European Parliament's Committee on Industry, Research and Energy as "the capacity to design, develop and scale up digital technologies needed for the competitiveness of our economy, the welfare of our citizens and the EU's open strategic autonomy in a globalised world" including "the EU's ability to make autonomous decisions".[34]

Concerns about digital sovereignty have been supercharged by the Trump presidency, which has fuelled concern that the US might exploit the EU's reliance on US tech services.[35] In this context it is important for policy makers to clearly identify which particular threats to sovereignty they wish to address. For example, when it comes to cloud services concerns might include that foreign governments can access EU firms' data;[36] or threaten to withdraw or suspend services (i.e., a 'kill switch') important to the European economy in order to compel the EU to act in a certain way, such as to reduce its regulation of foreign tech firms.[37] Similarly, in AI, concerns might be that the EU will be wholly reliant on foundation models which are trained in ways inconsistent with EU values – for example, with bias or a lack of transparency.

It is equally important that policy makers quantify, as best they can, the likelihood of these risks materialising and the degree of harm they would cause. For example, US government requests to access data rarely appear to demand access to the customer content stored by government or enterprise clients, and Amazon reports that no requests have resulted in disclosure of such data held outside the US to the US government since at least 2020.[38] The plausibility of some of the more extreme US interventions – such as 'kill switches' – might be questionable, given they would not only harm Europe but also permanently damage the perceived reliability and trustworthiness of the US's largest technology firms. However, it seems clear from the US administration's decisions and appointments that it is both concerned by EU policies[39] and that the administration's interests differ from those of the US's largest tech firms.[40] More broadly, if the EU is wholly reliant on foreign technologies like the provision of large AI foundation models, then there will be a risk that those

[32] European Commission, 'European Economic Security Strategy', 20 June 2023.
[33] Spain's National Office of Foresight and Strategy, 'Resilient EU2030', 2023.
[34] European Parliament, 'Report on European technological sovereignty and digital infrastructure', 11 June 2025, 2025/2007(INI).
[35] Kai Zenner et. al., above n 8.
[36] Zach Meyers, 'Can the EU afford to drive out American cloud services?', CER insight, 2 March 2023.
[37] Kai Zenner et. al., above n 8 ; Mathieu Pollet, 'Trump can pull the plug on the internet, and Europe can't do anything about it', Politico, 18 June 2025.
[38] Amazon, 'Law Enforcement Information Requests', July-December 2024, available at https://www.amazon.com/gp/help/customer/display.html?nodeId=GYSDRGWQ2C2CRYEF.
[39] White House, 'Memorandum: Defending American Companies and Innovators From Overseas Extortion and Unfair Fines and Penalties', 21 February 2025.
[40] For example, the President's appointees to the Federal Trade Commission and the Department of Justice have continued to pursue cases against tech firms brought under previous administrations, despite the Republican party's traditional light-touch approach to antitrust.

models would not be developed in line with EU values – though that can be mitigated by the EU helping to ensure the availability of data for AI models to be trained on (particularly in less-common European languages). The likelihood of these risks and their severity must be kept in perspective (not least because foreign providers will likely continue to want their products to be taken up in the lucrative European market, so are unlikely to voluntarily adopt measures which would raise questions about their reliability). However, **a European competitiveness strategy cannot plausibly ignore these significant risks to its growth prospects – digital sovereignty must have an important role in the EU's economic plans**.

The EU has spent several years building up an armoury of tools to boost its economic security, including the Anti-Coercion Instrument,[41] which allows the Commission to respond to countries which threaten the EU economically. The Commission can design responses to such threats, including applying tariffs, excluding a country's firms from public procurement opportunities, or enacting measures targeting their investments in the EU. However, the EU's ability and willingness to use these types of tools will be limited if the foreign country can influence the EU's critical infrastructure or services and the EU has no similarly powerful form of retaliation. That currently seems true in the digital sector since the EU is reliant on constant and uninterrupted access to digital services like cloud computing provided by foreign firms, whereas other countries rely on access to European technology and equipment, like ASML's chip-making tools, a cease-sale of which would not cause the same level of sharp and immediate economic damage. While the EU has always been a trade-intensive and open economy, there is a growing view that the bloc's tech dependencies are too unilateral and one-sided.

The relationship between competitiveness and digital sovereignty is therefore complex. For example, boosting productivity requires improving the use and diffusion of technology throughout the EU. In the short term, at least, Europe is starting from behind in most core technologies, such as cloud computing and AI; focussing primarily on technology diffusion may therefore increase the EU's dependencies.

A similar dilemma between competitiveness and technology diffusion has already played out in relation to the telecommunications network equipment market. The costs of excluding and removing 'high risk' equipment vendors from European telecommunications networks was made with little detailed analysis of its impacts on growth, security or resilience – and has reportedly cost approximately €45bn in productivity growth, and weighs heavily on the profitability of European telecommunications firms.[42] In that case, the EU at least had firms such as Nokia and Ericsson who would benefit. **The sovereignty/competitiveness dilemma is even greater when it comes to managing today's productivity-enhancing technologies in Europe, such as AI and cloud computing: unlike in telecoms network equipment, in AI and cloud computing it is not clear whether EU firms will emerge who will be globally competitive over the long run.**

The EU will have to confront this problem in its upcoming Apply AI Strategy, which aims to boost diffusion of AI across industry and the public sector. Even if a European competitiveness strategy boosts European tech products specifically, these products will themselves often be reliant on foreign cloud computing, AI, operating systems, devices, browsers, and other digital infrastructure. Attempts

[41] Regulation (EU) 2023/2675.
[42] GSMA Intelligence, 'Economic impact assessment of 5G supply chain restrictions in the EU', April 2019, https://d110erj175o600.cloudfront.net/wp-content/uploads/2019/10/GSMA-report-Cost-of-ban.pdf.

to increase European firms' use of EU technology will (at best) have to happen in parallel with increasing use of foreign tech services and infrastructure.

Concerns about growing dependency on foreign ICT suppliers has led to increasing calls for the EU to take more steps to boost its economic sovereignty in tech. There are several models for such intervention.

3.1 An end-to-end tech stack?

Some proponents suggest funding an end-to-end European tech stack – from basic connectivity through to data centres, operating systems, AI models and end-user software – largely through consortiums of existing European tech firms, based on principles of openness and interoperability.[43]

Ensuring the availability of more EU providers might be a useful step and promote more competition. However, **it is not plausible for the EU to ensure globally competitive options throughout the end-to-end tech stack**: digital supply chains are deeply interconnected. The technological sophistication of processes like chip-making means that certain countries and geographies are globally dominant at certain parts of the supply chain. Even in parts of the supply chain where the EU is dominant, such as the provision of chip-making equipment, the EU's leading companies rely heavily on a complex set of suppliers: chip-making equipment provider ASML, for example, has over 5,000 suppliers in its total supplier base, over half of which are outside Europe, including 1,375 from Asia and 1,355 from North America.[44] Furthermore, many downstream tech services have exploited economies of scale and network effects which mean there is a first-mover advantage: that means even where building a replacement European service might be technically plausible, it is unlikely to be commercially successful or enjoy the quality as early equivalents. Countries like China which are trying to control end-to-end stacks have only done so with the use of massive subsidies and the exclusion of foreign suppliers – options which are not politically viable at similar scale in the EU – and with the availability of rare earths and similar advantages which the EU does not have. The Commission's proposed Competitiveness Fund would dedicate about €55 bn to digital leadership. Member States are likely to water that proposal down, but even if they do not, the figure pales in comparison to the cost of building an end-to-end set of European options, which even its proponents estimate at €300 bn.

Even at a single point of the tech stack, **an approach based on openness and interoperability may be too slow to be feasible**. The GAIA-X consortium, for example, was a European cloud computing initiative, originally envisaged to provide standards for interoperability between cloud computing services, thereby helping numerous smaller European players with fewer features compete with their much larger and more feature-rich US competitors. However, GAIA-X has struggled to achieve much agreement, much less setting interoperable standards, among its participants. Interoperability requirements for cloud services have also been pursued in the EU's Data Act but progress here is also likely to be slow. While openness and interoperability may be important in some contexts, if open governance mechanisms are used to agree on standards for interoperability these can be slow and tedious for participants to agree, making them less agile and able to compete in fast-moving sectors.[45] The economic literature suggests insisting on requirements like interoperability and openness may

[43] Francesca Bria et. al., 'EuroStack – A European Alternative for Digital Sovereignty', 2025.
[44] ASML, Annual Report, 2023, p 325.
[45] Zach Meyers, 'Which Governance Mechanisms for Open Tech Platforms', CERRE issue paper, January 2025.

have positive or negative effects on innovation, depending on the characteristics of the particular market.[46] Such requirements need to be imposed cautiously rather than as an overarching principle. As explained below, competition rather than co-operation sometimes provides better incentives for firms to innovate and improve their security.

Furthermore, **merely ensuring the *availability* of EU providers may provide only marginal sovereignty benefits** for several reasons. First, it is not technically easy for companies to immediately and seamlessly switch services from foreign to a 'European sovereign' tech solution at short notice. Second, in the event that large numbers of European companies suddenly had to replace their use of foreign services with European ones, those European companies would often lack the capacity to take on the new demand without massive new investments,[47] and they would almost certainly need to procure components like chips and server racks from outside the EU. An EU supply chain would therefore only fully protect against political risk if it 'pre-empted' what foreign governments might do by immediately requiring European companies to stop using foreign services and instead use 'sovereign' solutions, regardless of their price or quality. For this reason, any requirement to tilt the playing field towards the use of sovereign solutions would have to be narrow to minimise any cost to European economic growth.

Finally, this approach will also risk inefficiency and reducing competition. This is because the policy may require **protecting European firms (which are treated as too important to fail because their existence is critical for European sovereignty) rather than allowing them to thrive or decline on their own merits**. This is a particular risk since Europe cannot replicate many successful US business models in a cost-competitive way. For example:

- The EU lacks firms which have a large-scale set of consumer-facing digital platforms, which was the basis for each of the largest US cloud computing companies – so it is unlikely a European firm could compete head-to-head with a US firm in that space. Forcing European business customers to use more expensive European cloud computing companies would simply lower those customers' own competitiveness and divert valuable funds away from technology diffusion.
- Parts of the Commission's AI Continent Action Plan appear to boost investments where Europe has no comparative advantage. For example, the business case for 'AI Gigafactories', data centres designed for training AI models is not clear, and few AI firms in Europe appear to have called for this type of public investment. The provision of computing power to train AI models is a scale business, where almost all of the successful players such as Amazon, Microsoft, Google and CoreWeave operate globally. Providing computing power for AI is also very energy-intensive, so it is very unlikely that the EU – given its structurally high energy costs – would have a comparative advantage in this sector. In particular, the €20 billion the Commission envisages for AI Gigafactories pales in comparison to the private sector investments being announced in other parts of the world, such as the $500 billion Stargate joint venture between OpenAI, Softbank and Oracle announced in the US.[48]

[46] Ibid.
[47] US cloud service providers currently provide the vast majority of services to the EU market: Pollet, above n 15.
[48] Jennifer Jacobs, 'Trump announces up to $500 billion in private sector AI infrastructure investment', CBS news, 22 January 2025.

- Similar questions arise about the Plan's desire to reduce Europe's dependence on other parts of the world for AI chips: the Plan does not, for example, demonstrate much insight into why the EU's numerous previous chip-making ambitions have all repeatedly failed to stem Europe's declining share in chip design and chip-making markets, much less reach the Commission's previous targets to grow the sector. Intel, for example, has withdrawn a number of promised investments from Europe; and in the meantime the EU has apparently promised in its trade deal with the US President to buy significant quantities of US AI accelerator chips. Rather than producing chips or AI-training supercomputers, the EU's comparative advantage may be in fine-tuning AI foundation models and producing downstream services, particularly those connected with Europe's industrial base, which would not necessarily require massive public investment in the most complex computing or chip-making facilities. Instead, it would require assurance (for example through regulation, which we discuss below) that AI foundation models are available and built in a way that is consistent with EU values.

Policy makers' unwillingness to let sovereignty-oriented projects succeed or fail on their merits is also demonstrated by the temptation to 'tilt the playing field' in favour of the European sovereign solutions, for example by encouraging 'buy European' in public procurement processes. The upcoming Cloud & AI Development Act will reportedly include a number of measures that might provide advantages to European cloud computing firms, including in (though perhaps not limited to) public procurement. We will discuss the role of regulation in a European competitiveness strategy in an upcoming paper. However, it suffices now to point out that European digital industrial policy should aim to improve, rather than limit, competition – for example by lowering barriers to entry and ensuring customers are free to switch to different options that better meet their needs. Where markets are effectively competitive, competition will usually remain the most effective way for businesses which use ICT to determine how much control and security they need, and how to weigh different types of risk, and for ICT providers to identify the most cost-effective way to meet customers' requirements. Regulatory requirements that pre-empt users' choices (for example by only allowing the purchase of 'sovereign' solutions) can be double-edged: on the one hand they may encourage more take-up of *European* services, but they also may *discourage take-up of technologies generally*, by reducing choices and making some services more burdensome to access. This type of approach to digital sovereignty needs to be tightly targeted, with the potential to benefit sovereign solutions weighed against the potential negative impacts on:

- Competition within Europe (for example from excluding foreign providers and/or relying on collaboration rather than competition between European tech firms);
- The competitiveness of many European firms which rely on foreign ICT products, services and components; and
- The global competitiveness of EU sovereign solutions, for example because ensuring immunity from foreign laws may severely limit an EU company's possibilities to do business overseas. For example, to be immune from the US CLOUD Act, a European cloud computing company would have to limit its business in the US – severely limiting its access to global customers. Furthermore, this would make the EU cloud company less competitive in Europe, since many European businesses have a presence in the US and would prefer a cloud computing provider which can serve all their locations (i.e., offering a 'one stop shop').

This implies that industrial policy measures aimed at reducing the EU's reliance on foreign tech services should be as narrow as possible. For example, as Draghi recommends in his report, the EU could require use of local cloud computing services only for a very limited set of highly secure data.[49] Or public procurement processes could be designed to ensure that large government buyers of cloud computing insist on interoperable solutions that allow rapid switching between different cloud computing providers, or insist that large buyers source cloud computing services from multiple countries.

3.2 Targeted European alternatives

A more targeted approach might be to pursue European alternatives in a few targeted parts of the tech supply chain which are seen as particularly sensitive to reduce the EU's existing dependencies. The premise of this approach is that 'onshoring' the entire tech supply chain in Europe is not possible. This requires prioritisation, which might require for example that alternatives are pursued where an evidence-based assessment reveals that the following criteria are all met:

- the alternative targets the most sensitive parts of the value chain which put the European economy or democracy at risk – for example, data relevant to national or European security, which should not be subject to access under foreign laws or the possibility of a 'kill switch', or social media services;
- the alternative addresses dependencies with partners which seem particularly untrustworthy or which are particularly one-sided;
- alternatives (like relying on foreign firms' 'sovereign cloud' solutions, described in section 3.4) do not provide sufficient assurances; and
- at the very least, it is technically and commercially possible for Europe to produce a 'minimum viable product'[50] as an European alternative – taking into account factors like network effects, first mover advantages, and the likelihood of being able to replicate functionality in proprietary solutions.

Cloud computing seems like an obvious area where this option could be pursued. However, there are a wide range of other services – such as payments systems, social media and digital advertising – that might warrant further exploration.[51] However, keeping such an approach targeted – and ensuring decisions are evidence-based and not informed by lobbying from domestic firms seeking protection – is a difficult challenge. We set out below in section 3.4 an institutionalised process by which it could be determined whether the criteria are met.

This approach has two advantages. First, it is more realistic than seeking an end-to-end European tech supply chain. Second, if it only applies in the narrow use cases identified after a careful evidence-based assessment, then the EU could more plausibly force the use of the sovereign solution, and any cost to

[49] Brian Williamson, 'Cloud – capturing the silver lining for Europe', Communications Chambers, April 2025.
[50] Bria et. al., above n 43, p 17.
[51] Many of these are listed in the European Parliament Committee on Industry, Research and Energy report of 11 June 2025: see above n 34.

competitiveness from being required to use the service (or adopting regulation that tilts the playing field) would be minimised.

The main difficulty with this approach is that European living standards, and European businesses, rely on the availability of many tech services, often with very complex supply chains and interdependencies – any one of which could be weaponised. The value of ensuring a 'sovereign option' in just one part of that chain (and for only the most sensitive workloads or uses) is questionable; there are likely to be many sensitive parts of the value chain where vulnerabilities remain.

3.3 Pursuing leads in emerging technologies

While the first two options are primarily defensive and aimed at reducing the EU's dependencies, a third option would be to take a more offensive approach, and focus on increasing other countries' dependencies on the EU.

Digital sovereignty and growth might therefore be reconciled by the **EU pursuing technological leadership in emerging technologies like 6G and quantum[52] where the EU has existing strengths but no global leader has emerged yet, and strengthening its position in sectors like chip-making equipment where the Dutch firm ASML remains the global leader**. From a tech sovereignty perspective, this approach would not eliminate Europe's dependencies – but it could give Europe more future leverage in its trading relationships, and therefore ensure the EU's enduring dependencies are less one-sided. Furthermore, this approach could be more growth-centric industrial policy than trying to inject European players in markets where they have not found their own competitive edge.

This policy could be pursued by focusing on getting the basics rights, like ensuring the right infrastructure and regulatory environment are in place to foster local innovation and investment. That would include, for example, ensuring that regulation does not unnecessarily get in the way of market-led innovation and investment. For example, regulatory barriers continue to pose significant constraints on the rollout of important infrastructure and assets like data centres and broadband networks, and EU regulation needs to provide a reliable and effective system of intellectual property rights ensuring sufficient rewards are available for innovating. Importantly, these types of improvements to regulations often do not require significant public investment.

Unlike the first two strategies, this model of pursuing digital sovereignty would also acknowledge that high-tech supply chains are global and that pursuing 'indigenous' supply chains is unrealistic. Instead of excluding foreign tech, the EU's goal should be to adopt them, use them to develop expertise, and then develop global leadership over such technologies.

However, the main risks of this approach for growth are three-fold.

First, the EU is increasingly focused on pursuing a more targeted and proactive industrial policy,[53] which implies to some extent 'picking winners': that is, deciding which **firms or sectors have a viable path to becoming successful without an ongoing need for public subsidy**. This policy therefore carries a high risk of misjudging future technology and commercial trends. For example, the EU's digital

[52] European Commission, 'Quantum Europe Strategy: Quantum Europe in a Changing World', COM(2025) 363, 2 July 2025.
[53] Rabah Arezki and Jean-Pierre Landau, 'Picking Winners Is Difficult and Costly', IMF, September 2024.

industrial policy to date has relied heavily on the expectation that 'edge computing', where cloud servers are located closer to end users, is a technology which would take off. If it did, the technology would be very convenient to the EU's strategic goals: helping to more easily protect the EU's data sovereignty, by ensuring data is kept within Europe, and it could offer a new set of commercial propositions which EU cloud computing firms could use to win market share from US hyperscalers. There remains potential for edge computing to develop in the context of AI, but for now enthusiasm for the technology in Europe has not been met with significant commercial deployment. The risks of 'picking winners' can be mitigated by ensuring an evidence-based approach, ensuring decisions are made based on the best available technological and commercial evidence (rather than factors like equity), are subject to critical scrutiny, and resist capture by industries and companies. It will also require some guesswork about future trends: identifying Europe's comparative advantages is complex enough, but policy makers will also have to consider how their plans compete with, or fit around, the industrial policies of other countries. Policy makers must also be ready to accept that many beneficiaries will be ill-chosen and be prepared to let them fail.[54] The need to accept firm failure helps explain the difference between high levels of innovation in the US and the lower levels in Europe. In many European sectors, only a few "superstar" firms are at the technological frontier.[55] Shifts in productivity generally come from leaders increasing their market share and laggards leaving the sector or (as, for example, in the accommodation sector) all firms quickly becoming innovation-savvy.[56] However, Europe suffers from a lack of dissemination of technology leadership from leading firms to others in the same market.[57] This may indicate a lack of effective competition and a regulatory environment that inappropriately protects less-efficient and less innovative firms.

Second, entry into many (but not all) emerging digital markets either requires very large up-front capital or the markets are subject to economies of scale, where competing players accept very low margins for a lengthy period in the hope of eventually earning a payoff if they 'win' the market. A successful industrial policy in these types of markets may require very significant public subsidy for a lengthy period of time, and it is not clear that the EU has always been realistic about the scope of the funding required or the timescale required for success. Take chips, for example. The European Commission's 2013 chips strategy failed to reverse the decline in the EU's share of the global chip-making market.[58] And the European Commission, for example, has been advised to "urgently carry out a reality check" on its 2022 chips strategy by the European Court of Auditors, with its targets being widely viewed as aspirational and not something that can be realistically achieved given the funding available.[59] This risk can be mitigated by providing significant sums and providing long-term certainty about the public support on offer.

[54] Réka Juhász et. al., 'The New Economics of Industrial Policy', August 2023, available at https://drodrik.scholar.harvard.edu/sites/scholar.harvard.edu/files/dani-rodrik/files/the_new_economics_of_ip_080123.pdf.

[55] Isabel Schnabel, 'From laggard to leader? Closing the euro area's technology gap', ECB Speech, 16 February 2024.

[56] Since customers mostly buy accommodation online, accommodation providers have no choice but to digitise.

[57] European Central Bank, 'Key factors behind productivity trends in EU countries', ECB occasional paper, December 2021.

[58] European Commission, 'A European Strategy for Micro- and Nanoelectronic Components and Systems', COM(2013) 298, 23 May 2013.

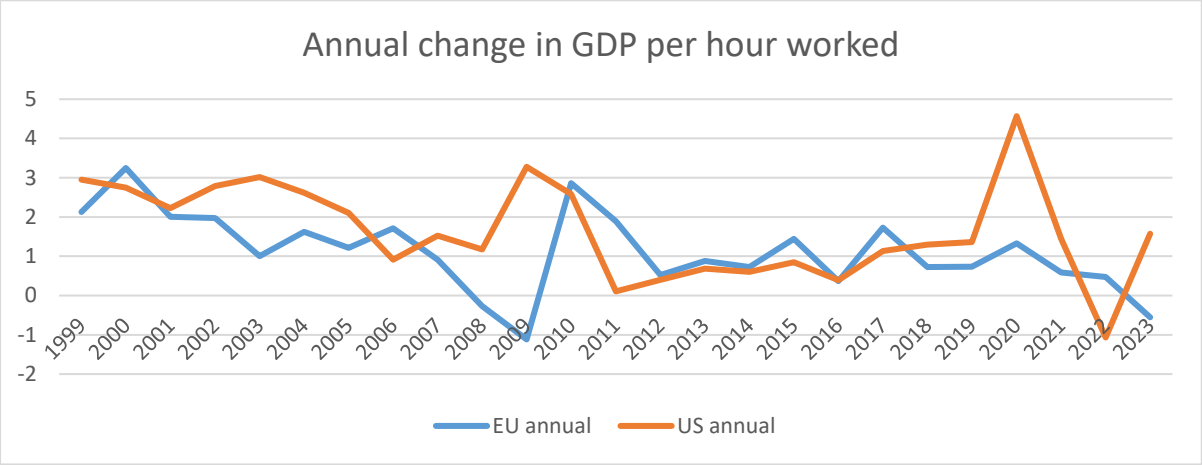
[59] European Court of Auditors, 'The EU's strategy for microchips', Special Report 12/2025, 2025, p 18.

Third, succeeding at new technologies will require the EU to revisit the reasons why the continent failed to reach the forefront of many of today's technologies like digital platforms. This comes down to two factors: regulatory predictability and providing suitable returns on investment. The EU now has a potential advantage over the US and China in providing regulatory predictability, if it can maintain policy consistency. However, in part because of the regulatory environment, returns on investment could be improved. The key problem is the lack of a properly functioning single market – barriers to trade in services within the EU are estimated by the IMF to be the equivalent of a 45% tariff – and to capital markets in Europe. The Commission is taking steps to ensure that regulation does not encourage firms to 'stay small', and its Competitiveness Compass and Single Market Strategy aim to reinvigorate the single market by reducing barriers to cross-border business, which will help innovative small firms scale across Europe more easily.[60] In particular, the Commission proposes in its Competitiveness Compass a '28th regime' to streamline labour, tax and insolvency rules for certain types of innovative firms.[61] If Member States finally back this idea, it could significantly improve the ability of innovative firms to grow across Europe and displace less-innovative incumbents. Similarly, ensuring adequate protection of and ability to commercialise intellectual property rights will be key since Europe is currently good at conducting basic research but performs less well at attracting investment to commercialise good ideas at scale.

However, success may also require a different view of risk-taking in the EU and a significant willingness to allow and accommodate economic (and, inevitably, social) disruption. For example, **a comparison with the US shows that the country's ability to take advantage of economic disruption is a significant factor in its ability to achieve productive growth**. The chart below shows that much of the gap in productivity (i.e., GDP per hour worked) arose in three periods. The first was the period 2001-05, which many economists attribute to US firms innovating using ICT technologies like productivity software and the internet, both of which had become widely available in the 1990s. But the other two periods are related to shocks: in the aftermath of both the financial crisis of 2008-09 and Covid in 2020-21, a wide gap opened up between US and EU productivity growth. For example, while both the US and EU economies shrunk in 2020 due to Covid and both enjoyed a rapid recovery in 2021, US growth has reverted to a level above 2% per year, while the EU's has remained stuck at around 1%. In part, this appears to be that the US allows firms to fail and employees to lose their jobs, allowing resources to shift from less productive firms or sectors to more productive ones.[62]

[60] European Commission, 'The Single Market: our European home market in an uncertain world – A Strategy for making the Single Market simple, seamless and strong', COM(2025) 500, 21 May 2025.
[61] European Commission, 'A Competitiveness Compass for the EU', COM(2025) 30, 29 January 2025.
[62] Dan Turner, et. al., above n 21.

Figure 1.[63]



Europe must therefore better allow resources to leave (even iconic) sectors and firms. Many firms currently soak up a significant proportion of the labour market and available capital while providing a drag on overall EU productivity. The US tends to have stronger 'up or out' dynamics:[64] successful US firms grow faster, and failing US firms leave the market more quickly. In comparison, Europe has a more static economy – with more firms remaining in the market despite having mediocre performance and less change between sectors.[65] This is illustrated in the continued focus on private sector R&D in the mid-tech automotive sector in Europe – while the US has shifted much of its R&D spending to high-growth, high-tech industries.[66]

Comparing the US and EU responses to Covid provides an illustrative example. US stimulus went directly to workers, which could use the money as they wished, rather than EU-style furlough schemes which rewarded firms for keeping people in their jobs even if they had no productive work.[67] The US model gave workers incentives to leave their roles and switch to higher-paying jobs with more successful firms. The massive spike in productivity growth in the US in 2020 compared to Europe seems to have been driven by high levels of labour market churn, business formation, and market exits freeing up resources to shift to more productive firms. In comparison, European support led to the phenomenon of 'zombie firms'.[68] Too strong a focus on protecting Europe's existing firms and sectors risks perpetuating this lack of dynamism – inhibiting the economy from adapting to structural changes, misallocating resources, and dampening competitive pressure for firms to take risks with technologies. This implies that, to achieve technology leadership, **the EU will have to embrace a more dynamic economy**.

Many policy makers find it difficult to adequately mitigate the risks of a proactive and targeted industrial policy. For example, when accepting economic disruption, job losses and firm closures are

[63] Source: IMF World Outlook 2025.
[64] Oyun-Erdene Adilbish, et. al., above n 6.
[65] Albert Bravo Biosca, 'New evidence on 'creative destruction' in Europe and the US', in Simon Tilford and Philip Whyte (eds), *Innovation: How Europe Can Take Off*, Centre for European Reform, 2011.
[66] C Fuest, et. al., 'EU Innovation Policy: How to Escape the Middle Technology Trap', 2024.
[67] Jean-Benoit Eymeoud, 'Contrasting U.S. and European Job Markets during COVID-19', Federal Reserve Bank of San Francisco, 22 February 2021.
[68] Tobias Helmersson, 'Corporate zombification: post-pandemic risks in the euro area', ECB Financial Stability Review, May 2021.

highly visible and interpreted as obvious signs of the failure of a government's economic policies. The beneficiaries of such closures – such as SMEs and firms which are yet to enter the market – are far less visible. This can make it difficult for politicians to adopt policies that promote – or at least tolerate – the risk and disruption necessary for innovation to thrive. However, as we will explain in a future paper, prioritising innovation and growth can be uniquely difficult for the EU to achieve given its institutional constraints, such as the competing demands of other policy imperatives like EU cohesion. This suggests that an 'offensive' strategy to boost growth and address unilateral dependencies may require changes to how the EU works.

Finally, the EU suffers from one structural weakness that must be addressed before it can leverage its global technological leadership: it needs to be more willing and able to weaponise others' dependencies on it, like some of its major trading partners are doing. The EU's approach to negotiating a trade deal with the US is illustrative: in the face of a threat of unprecedented transatlantic tariffs, the EU was unwilling to 'play tough', holding back on retaliation, refusing to use new tools at the Commission's disposal like the Anti-Coercion Instrument, and being reluctant to seriously threaten retaliation in services. In part this is likely because EU Member States believe that Europe's current dependency on the US – for defence and for important technological services – is so great that 'playing tough' is not an option yet, but will be once the EU can be pulled away from excessive dependence on the US. Investment in the defence sector may therefore be useful both to increase the EU's leverage in negotiations with the US, and because defence investment can often gestate commercially valuable innovations in its own right, as it has with GPS, computers, the Internet and nuclear power.[69]

Another interpretation is that the EU is simply too beholden to existing incumbent industries which wanted certainty and continuation of the status quo. In the past, the EU has failed to negotiate well with the US in a range of areas where the EU had strengths, such as in relation to export controls on sales of chip-making machinery to China. This implies that the EU needs more unity – or that structural changes are necessary to help EU trade negotiators act more autonomously in a way which befits the current geopolitical environment. Without both willingness and ability to weaponise its strengths, like its trading partners do, increasing its technological leadership may be insufficient to give the EU more global leverage. We will revisit the question of how EU institutional structures could be reformed in a future issue paper in this project.

3.4 Regulatory mitigation

A final option is for **Europe to use its market leverage to mitigate sovereignty risks – by requiring firms to provide assurances and options that either (i) reduce Europeans' exposure to 'weaponisation' of dependencies; and/or (ii) ensure workable fall-back options if such weaponisation occurred**.

This is likely to be one option pursued by the upcoming Cloud & AI Development Act, though whether it will have the effect of excluding foreign firms from (part of) certain markets remains to be seen.

Private cloud solutions -for example, where data centres are used which are disconnected from the public internet - can be provided by European companies but have limited functionality compared to public cloud options. To protect European data from the main US laws which allow law enforcement

[69] See Mariana Mazzucato, *The Entrepreneurial State* (2013).

and intelligence agencies to collect data (i.e., the CLOUD Act and FISA), and against 'kill switch' risks, however, major global cloud computing providers have put in place 'sovereign' solutions. These may include a range of characteristics such as:

- commitments to put European data centres under the oversight of European board of directors that consists exclusively of European nationals;
- localising data so it is stored only in Europe, often with technical solutions such as Amazon's Nitro system, Microsoft's Confidential Compute and Google's Confidential Virtual Machines, which can help ensure only the customer, and not the cloud computing provider, can access a customer's data, even when the data is being actively processed in the cloud environment;
- contractual commitments to litigate any order to cease its cloud services in court; and
- contingency arrangements so cloud services can operate independently in the event of a disruption and (as a last resort) be seamlessly handed over to local partners, with local EU citizens provided with the source code needed to maintain the service.[70]

Some of these solutions involve joint ventures with EU cloud computing partners, with European data accessible only by EU partners.

Similar solutions could be envisaged for other ICT goods and services – for example, by ICT goods providers agreeing to stockpile equipment in the EU in case of impeded trade flows, or ICT software suppliers agreeing to store their code in the EU and ensure local partners are constantly in a position to provide a local service. For example, in the payments sector, a number of countries have demanded local backup payment processing systems which can be run (if necessary) independently of global payment networks like Visa and Mastercard.[71] The EU could also mandate that firms develop their services based on interoperable standards to ensure business customers have a wider range of choices. This could be pursued to complement with the EU's current efforts (as set out in the Competitiveness Compass) to diversify suppliers in sectors where EU customers are currently reliant on companies from a small number of countries. Greater reliance on trusted third countries may help provide more diverse and resilient supply chains without the EU or its Member States resorting to subsidising European or national champions.

There are two main constraints to using regulation to impose sovereignty requirements:

- First, today's sovereign cloud solutions may not provide complete assurance. For example, contractual commitments may not override a firm's statutory obligation, and while a statutory obligation cannot override a technical safeguard (such as encryption), the scope and strength of any technical safeguards need to be assured. For example, data which is only stored in cloud computing environments can be encrypted so that it can only be read by the customer and not the cloud computing platform (so long as the cloud computing platform does not have the

[70] Brad Smith, Microsoft, 'Microsoft announces new European digital commitments', 30 April 2025; see also Judson Althoff, Microsoft, 'Announcing comprehensive sovereign solutions empowering European organizations', 16 June 2025; Amazon, 'Built, operated, controlled, and secured in Europe: AWS unveils new sovereign controls and governance structure for the AWS European Sovereign Cloud', 3 June 2025.
[71] See Tass, 'International acceptance of Mir cards grows despite sanctions — Bank of Russia', 7 April 2025.

right to view the data for operational purposes), but this does not extend to use of applications offered as part of cloud services (i.e., software-as-a-service or Saas).[72]

- Second, sovereign options will still have a significant cost to the supplier involved, and it can be assumed that at least some of these costs will be passed through to EU business customers – impacting their cost bases or possibly making some of them less likely to take up new technologies like cloud computing. In theory, however, these could be less expensive than the public cost of supporting new European competitors.

This solution has one primary benefit when it comes to competitiveness: to the extent it is cheaper than other forms of achieving sovereignty, it is most consistent with the EU pursuing technology diffusion as its primary competitiveness goal – at least in the short term. However, relying solely on this strategy will do nothing to boost the EU's presence in high-growth sectors in the long term.

In the past, measures to impose 'sovereignty' requirements in the EU have sometimes been progressed without much transparency nor in an evidence-led manner. For example, under the last Commission, there were efforts to inject sovereignty requirements into the proposed EU Cloud Certification Scheme. This instrument was prepared under the Cybersecurity Act which was intended to address technical rather than political risks. Consequently, the process lacked the appropriate levels of transparency, predictability or accountability given the requirements would have had significant political and economic consequences. Rather than pursue sovereignty requirements in an ad hoc fashion, requirements for firms to make these types of commitments could be formalised institutionally. For example, most Member States have a system of screening foreign direct investment and the US has a Committee on Foreign Investment in the United States (CFIUS), an inter-agency committee which reviews the security implications of foreign investments into the US. These institutions are already empowered to impose rules like supply guarantees and 'golden shares' to protect national security. However, such an institution would need to have a broader remit in order to cover existing investment and vulnerabilities and to examine the broader concept of 'sovereignty' rather than just 'security'. This would need to be adopted proportionately and in narrow sectors, and with sufficient transparency and predictability. It could then provide European businesses with more certainty about the safe use of foreign ICT products and services.

[72] Johan David Michels et. al., 'Storm Clouds are Building: Surveillance, Sovereignty, and State Interests', SSRN, 3 February 2025.

4. Balancing growth and sovereignty

None of these solutions provides a complete resolution to the EU's sovereignty dilemma in tech; nor do any of these solutions imply growth can be pursued without any cost (at least in the short term) for EU tech sovereignty. They will all involve some cost, which might be borne by either the public or the private sector, and may impact tech dissemination, competition and productivity.

They also all involve trade-offs in terms of control, security and cost: requiring the EU to accept some degree of risk and, in some cases, to trade off different types of risk (e.g., political risk from foreign laws against risks from traditional cybersecurity threats). A combination of some of these solutions – defensive investments to ensure European suppliers in some core technologies, offensive steps to build out EU capabilities in areas where it can act as a global 'chokepoint', and measures to mitigate political risks from using non-EU providers – will therefore likely be necessary.

In deciding where to adopt each solution, the first step must be to quantify the costs and risks of its proposals. This includes:

- the costs to taxpayers from supporting industrial policy;
- the costs which will be borne by the private sector, for example where European companies face fewer choices of supplier or might be less willing to adopt new technologies. The direct costs and the long-term productivity costs of different types of sovereignty policies both need to be understood; and
- the long-term impacts on sovereignty of simply focusing on boosting EU firms' take-up of technology. For example, improving take-up of tech in Europe could significantly boost local innovation in the long run. One reason why EU tech start-ups move to the US is that American firms are faster to exploit new technologies, in turn creating more demand for tech firms' services. Boosting demand for new tech, even if in the short term US companies absorb most of that demand, will create a more promising environment for European innovators in future. **If industrial policy to 'de-risk' from foreign technologies was limited and targeted, that would help investors and firms discover where Europe has the most potential to produce innovative and globally competitive services** – even if that means building on top of foreign platforms and services. This does not doom the EU to be a "digital colony" where it only provides supplementary value-added services over foreign infrastructure. In sectors with dynamic and innovation-led competition, like the digital sector, there are many examples of value-added services becoming new focal points for digital ecosystems – just as AI agents, for example, might become the key way in which users interact with a variety of different operating systems and other platforms, rendering those agents more important in the digital ecosystem than these previously powerful gatekeeping services.[73]

[73] Friso Boeston and Jan Krämer, 'AI Agents and Ecosystems Contestability', CERRE, 5 November 2024.

5. Conclusion

If the EU takes Draghi's prescription seriously, and focuses on technology-led productivity growth, it will need to focus on increasing European companies' effective use of technology. It ought to be realistic about its capabilities to achieve this; honest about where other policy imperatives like digital sovereignty might come into conflict with technology diffusion; and clear about how the trade-offs between different priorities are being handled.

In some cases, the tension between different goals – such as economic growth and tech sovereignty – might be overstated: for example, lack of technology diffusion in Europe might be a cause, rather than a symptom, of its lack of tech leadership. In other cases, there may be a balance to be struck between seeking economic growth on the one hand and minimising excessive dependencies and threats to European sovereignty on the other. **But it would be unwise for the EU to continue to pretend that these trade-offs do not exist**. The risk is that – faced with more external threats and aggressive economic policies from other major powers – Europe will hunker down on its existing approach to innovation, which has delivered neither growth nor sovereignty. In fact, pursuing technological autonomy poses perhaps the greatest threat to Europe's digital sovereignty. That approach may appear to work for a while – but as Japan found in the 1990s, this approach risks creating a cul-de-sac which cannot compete globally in the long run.

This will require the EU to be more realistic in its priority-setting. It should be clear about which goals it seeks to pursue and prioritise, and in which circumstances. Questions about how to reconcile trade-offs are reflected, but not fully resolved, in the Draghi report – which points to the need to close the innovation gap with the US and China, while also enhancing Europe's sovereignty and reducing excessive dependencies.

In this paper we have clarified what a 'competitiveness strategy' should aim to achieve and how. We also point to how the Commission could better acknowledge and address trade-offs between competitiveness and sovereignty to promote the long-term prospects for the European tech sector. A clearer understanding of what a 'competitiveness strategy' should aim to achieve will be essential to help policy makers better make evidence-based decisions about how to balance the EU's strategic objectives.

cerre Centre on Regulation in Europe

Avenue Louise 475 (box 10)
1050 Brussels, Belgium
+32 2 230 83 60
info@cerre.eu
www.cerre.eu

Centre on Regulation in Europe (CERRE)
CERRE Think Tank
CERRE Think Tank